As many organizations look to implement desktop virtualization strategies, it’s important to have a plan in place. With all the layers of virtualization organizations have to consider, sufficient return on investment (ROI) should be at the top of the list of key elements. This e-guide will discuss best practices to consider when prioritizing and deploying desktop virtualization, including how to properly calculate ROI.
E-Guide

Best practices and ROI calculations for virtualization implementations

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By Laura DiDio, Contributor

If your organization is among the many planning to deploy desktop virtualization solutions, be forewarned: You need a plan. The degree of difficulty associated with virtualized environments increases as your organization climbs further up the networking stack. A company should construct a specific list of best practices that encompass every phase of a desktop virtualization project, from planning to deployment and ongoing maintenance.

In preparation for the move to desktop virtualization, Information Technology Intelligence Corp. has compiled the following checklist for IT managers to follow to ensure a successful deployment:

1. **Align the technology with the business goals.** Organizations should always define business goals around end users. Assess the local- vs. mobile-user population and the issues associated with each group. Make a three- to five-year plan, if possible. Ask what products, tools and capabilities users need to be more productive. What does the business need to be more competitive (upgraded desktops or servers, improved security, reliability, remote access, or more flexibility, business agility, etc.)? Once you've compiled the list, prioritize. This will make it easier to build a business case for desktop virtualization solutions.

2. **Take inventory and review the end-user population.** Take inventory of all devices, licenses and connections. This is a crucial component of regulatory compliance. Next, profile users: Identify the current percentage of mobile and remote workers and estimate how this number will change during the next several years. Review the type of end users -- mobile, call center, fixed. Are you users demanding choice? Do you need to provide customization and flexibility?

3. **Identify the level of desktop and application flexibility users require.** What are the key business and technology drivers for the organization? What can users do with desktop virtualization solutions, and how will it make them more productive and support the overarching goals of the business? Assess the security of your current and planned desktop virtualization environment.
4. **Determine the level of customization needed for application delivery.** Once you've decided on the degree of customization, review the application infrastructure. Identify the skills needed to maintain and manage the new desktop virtualization environment. Don't skimp on training or recertification. You'll also want to establish that any new solution won't require you to rip out and replace the entire existing infrastructure.

5. **Calculate the investment cost and ramp-up time.** Once you've collected the requirements, you're ready to look at desktop virtualization solutions. Establish a realistic estimate of the capital expenditure acquisition costs and calculate costs for each phase of the desktop virtualization project. Construct a timetable for the development, testing and final rollout of the virtual desktop infrastructure. Estimate the annual maintenance support costs, so this can be incorporated into the IT department's annual operational budget. Companies must map out a three- to five-year business plan that includes a realistic budget for IT salaries, training and migrations to the appropriate desktop virtualization solutions, as well as support and maintenance agreements. Do not rush the project. Careful fiscal planning will lead to faster ROI.

6. **Ensure integration and interoperability with the legacy environment.** New technology deployments are frequently disruptive. Carefully review all aspects of your legacy desktop applications and tools, with an eye toward a smooth transition. Some incompatibilities are unavoidable. This is particularly true if your firm's desktop hardware and applications are outmoded. Your IT department should work closely with vendors to find workarounds and construct a plan to ensure backward compatibility.

7. **Estimate the solution life span.** Ensure that the new desktop virtualization environment is future proof. Does it support multiple platforms? Will it support cloud infrastructure? Will it continue to support rich-performance applications?

8. **Set operational-level agreements (OLAs).** The OLA is the working organizational chart that defines and establishes priorities and responsibilities for things like hours of operation, response times, systems support and security. OLAs are crucial and especially important in a desktop virtualization environment, where the physical devices may be local or remote.
9. **Pay close attention to the pricing and licensing model of your vendors and their products.** Desktop virtualization solutions are part of an emerging technology; licensing agreements will vary from vendor to vendor and even among product lines from the same vendor. The size and scope of your deployment will also affect the terms and conditions of deals. Conventional wisdom has long held that large enterprises and named accounts get the best deals, but that's not always the case. Many midmarket companies can score excellent deals that can save tens of thousands and even millions of dollars over the product's life span.

C-level executives, IT managers and corporate attorneys should regularly review the terms and conditions of their licensing, maintenance and upgrade contracts. Licensing contracts are often obscure and vague, so don't hesitate to call your vendor or reseller sales representative. Whenever possible, enlist the aid of in-house counsel or external lawyers specializing in contracts, to explain licensing intricacies.

10. **Communicate, collaborate and co-operate.** Finally, companies contemplating desktop virtualization solutions should also pay close attention to the human elements of the project. It takes careful planning and buy-in from all of the appropriate members of the organization to successfully deploy desktop virtualization. Practice the three "Cs": communication, collaboration and cooperation. Communication among C-level executives, IT departments, software developers and members of the physical facilities staff, as well as the persons responsible for negotiating the key infrastructure components (desktop, server and applications), is the key to successful operations and achieving the greatest economies of scale. This will help the business assemble the appropriate team to outline the project goals, construct a budget, assign responsibilities and set a timetable complete with milestones.
Calculating ROI for server, desktop and application virtualization

By Danielle and Nelson Ruest, Contributors

Virtualization has been touted as IT's lifesaver for the past few years. This is true, in many ways. There are so many layers of virtualization that organizations can implement -- including server, storage, desktop, application, presentation and user state virtualization -- all of which change the metrics for IT departments.

But organizations should not implement virtualization for the sake of virtualization. Like all projects in IT, staying focused on obtaining a sufficient return on investment (ROI) is a key element in virtualization projects. Calculating ROI for virtualization, both the hard and soft cost savings, can help you successfully execute your strategy.

First, focus on short-term needs when planning your virtualization strategy. If your server room is crammed full of physical machines and you're thinking of moving or expanding your data center, then server virtualization is the first place to start. If you have problematic applications in your desktop network, then perhaps you should start with application virtualization and resolve these problems once and for all.

Start with a simple and structured approach -- build on your successes and virtualize one step at a time.

**Begin with server virtualization.** Most organizations have problems with their data centers and physical server utilization ratios, so it often makes sense to start here. Server virtualization will resolve many data center issues and increase server utilization to 60% or 70%. It will also help you plan out the foundation required to implement virtualization in other layers, such as virtual desktop infrastructure (VDI) or storage virtualization, since both have a tendency to grow out of the infrastructure necessary for server virtualization.

**Lay out a foundation for application virtualization.** The advantage of using application virtualization is that you don't have to deploy it for every application in your network at
once. You can focus on the most difficult applications first, and then slowly work to encompass all applications.

**Address other layers of virtualization as needed.** For example, user state virtualization is nothing more than a matter of applying technologies you already have in your network. If you're using Microsoft Active Directory Domain Services, it relies on Group Policy to implement Folder Redirection and user account management to deploy roaming profiles. Implementing these technologies will both protect user information by storing it in centralized repositories, and lay the groundwork for the implementation of VDI.

**How to calculate ROI**

As a rule, you'll want to perform a project postmortem, calculating ROI after implementing each layer of virtualization. Server virtualization can bring you some considerable hard-dollar savings from the start, especially if you can obtain some rebates from your utility provider or local government.

**Potential and real cost savings from server virtualization**

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power savings</td>
<td>$300 to $600 per virtualized server.</td>
</tr>
<tr>
<td>Cooling savings</td>
<td>Up to $400 per virtualized server.</td>
</tr>
<tr>
<td>Hardware savings</td>
<td>From $2,500 or more per virtualized server, depending on physical server type.</td>
</tr>
<tr>
<td>License savings (Microsoft Windows Server)</td>
<td>75% of Enterprise license per virtualized server.</td>
</tr>
<tr>
<td>License savings (open source)</td>
<td>Nothing, except for support costs.</td>
</tr>
<tr>
<td>Power rebates (selected utility organizations)</td>
<td>Up to 50% of the total cost of the project .</td>
</tr>
<tr>
<td>Government rebates (federal, provincial and state)</td>
<td>Variable reduction rates (income tax reductions, sales tax rebates</td>
</tr>
</tbody>
</table>
More than 90% space reduction (based on an average of 10 virtual machines per physical host).

For some of the virtualization technologies, it can be difficult to quantify some of the soft-dollar savings. Keep the following questions in mind when calculating ROI:

- How much do you value the time you save in preparing a virtual vs. a physical server? A virtual server can be prepared in minutes once the infrastructure and process are in place, compared with weeks for a physical server.
- How much do you value the automation of standard testing and development environment preparation? With virtualization, you can implement technologies that allow your testers and developers to both deploy and manage their own test environments.
- How much do you value the flexibility a virtual infrastructure can provide for changing business needs? With the ability to deploy new applications -- both server and desktop -- in days rather than weeks, you'll be able to respond quickly and effectively to changing business needs.
- How much do you value the reduced time to deploy new operating systems such as Windows 7? With application virtualization, you may never have to repackage an existing application again. This is especially true when you change operating systems, because the application virtualization engine allows the application to work on almost any version of Windows. This is one of the most significant savings you'll see when implementing virtualization.

There is no doubt: Virtualization provides solid ROI. But properly calculating ROI can prove you are getting the most out of it.
Resources from Dell and VMware

Virtualization Savings Calculator

Assessment Tool - Find out which VMware solution is right for your business

Try VMware vSphere: Free 60-day evaluation

About Dell and VMware

Dell and VMware have a long-standing alliance and a history of working together to test and certify VMware® solutions running on Dell servers. Dell and VMware have invested thousands of hours in joint engineering, architectural design and solution validation to deliver integrated solutions with exceptional performance, reliability and simplified management. Through proven processes and solutions, Dell reduces the risk of transformation and accelerates virtualization adoption so organizations can quickly realize return on investment (ROI) without sacrificing productivity. Dell is committed to driving complexity from enterprise computing, including virtual infrastructure. Together, Dell and VMware deliver efficient virtual infrastructure solutions that are fast to deploy and easy to manage.